



Natalie Kuldell and Ron Weiss

February 2nd, 2010

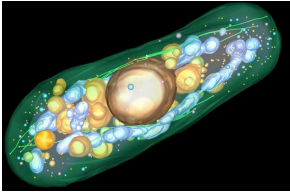
[http://openwetware.org/wiki/20.20\(S10\)](http://openwetware.org/wiki/20.20(S10))

What you'll work on...



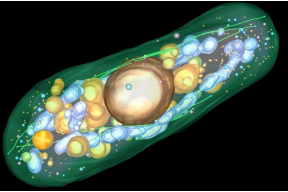
1. design a plausible and compelling synthetic biological system
2. develop a detailed design plan and construction roadmap
3. evaluate ownership, commercial, ethical aspects of the project

What you'll learn (I think)...



Understand the operation of genetic programs in prokaryotes and eukaryotes.

What you'll learn (I think)...

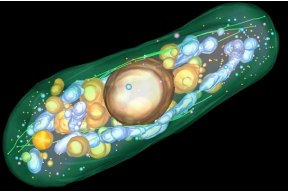


Understand the operation of genetic programs in prokaryotes and eukaryotes.



Describe key enabling technologies that support the engineering of biology, including synthesis, abstraction and standardization.

What you'll learn (I think)...



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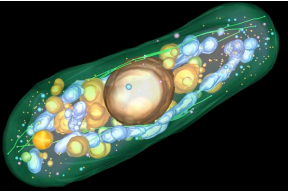


Describe key enabling technologies that support the engineering of biology, including synthesis, abstraction and standardization.



Develop awareness of issues of human practice that impact & result from the development and application of biological technologies.

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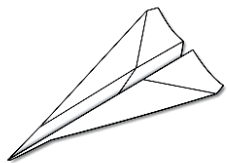
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3-3-3



Tuesdays/Thursdays

11:30-1



Start with challenge/puzzle/activity



Follow-up with group discussion



Occasional homework





- ❧ How can biology be made easier to engineer?
- ❧ What are the consequences of success?
- ❧ How has nature solved physical challenges?
- ❧ In what ways does nature innovate?



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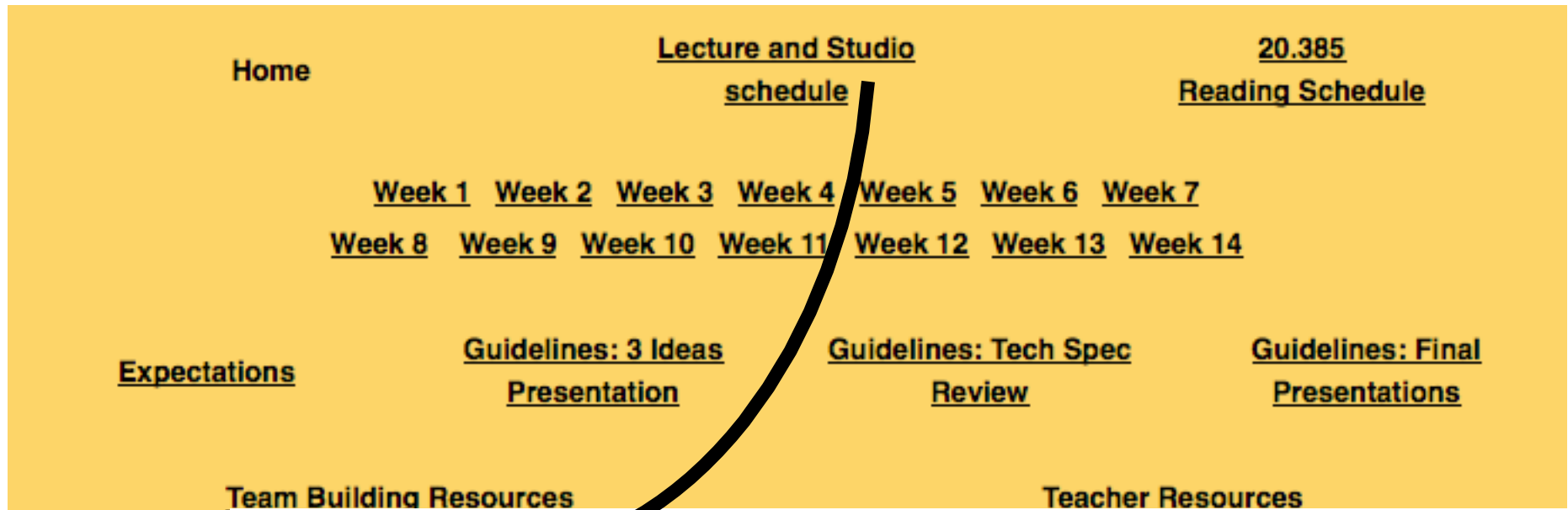
Week 1 Week 2 Week 3 Week 4 Week 5 Week 6 Week 7
Week 8 Week 9 Week 10 Week 11 Week 12 Week 13 Week 14

Expectations Guidelines: 3 Ideas Presentation Guidelines: Tech Spec Review Guidelines: Final Presentations

Team Building Resources Teacher Resources

Wednesdays 2-5

Challenge	What is the challenge to address?	Importance of challenge?	Impact of solution?
Project name	Your title here	Possible competing technologies?	Knowns and unknowns?
Device-level diagram	Your design here	Model for system operation?	Buildable? Cost? Time? Safety? Security?
		Plan for validation and debugging?	
Parts-level diagram	Parts list here	Sourcing?	Buildable? Cost? Time? Safety? Security?
		Description and annotation of function?	



Wednesdays 2-5

Challenge	What is the challenge to address?	3 ideas presentation	
Project name	Your title here		
Device-level diagram	Your design here	Model for system operation?	Buildable?
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			Time?
Parts-level diagram	Parts list here	Sourcing?	Safety?
		Description and annotation of function?	Security?

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Wednesdays 2-5

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Parts-level diagram	<div>Parts list here</div>	

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Project

- 3 ideas presentation
- Tech spec review
- Final presentation

60%, team grades

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Project

- 3 ideas presentation
- Tech spec review
- Final presentation

60%, team grades

Personal Design Portfolio

25%, individual grades

Project Development Ntbk

10%, team grades

Instructor Leverage

5%, individual grades

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Part 1: Readings

- Paper 1 (10%): presented with a partner
- Paper 2 (15%): presented solo
- Response record (25%): your thoughts about the papers you don't present.

Instructions for these assignment are [here](#)

Part 2: Team Mentoring

- Progress reports (15%): one page summaries of your freshman team's work
- Mentoring journal(15%): one page summary of your freshman team's dynamics
- Team's project average (15%): based on the grade for the 3 major assignments submitted by your freshman team
- Instructor Leverage (5%): discretionary adjustment by NK, RW

Instructions for these assignments are [here](#)

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any ???s

Let's get building!!!

the end